

# State of Kansas

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## 2014 – 2015 Ambient Air Monitoring Network Plan



Department of Health and Environment  
Division of Environment  
Bureau of Air  
(785) 296-6024

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## **Proposed Revisions to the Kansas Ambient Air Monitoring Network: 2014 - 2015 Annual Monitoring Plan**

The Kansas Department of Health and Environment (KDHE) is required to submit an annual ambient air quality monitoring plan to the United States Environmental Protection Agency (EPA). This notice is provided for the purpose of informing the public of this activity, and to provide an opportunity for interested parties to offer additional relevant information and comments to the KDHE. Written comments must be received by the Bureau of Air no later than July 1, 2014, to assure consideration prior to submission of this plan. Comments from the interested public should be addressed to:

Kansas Department of Health and Environment  
Bureau of Air  
1000 SW Jackson, Suite 310  
Topeka, KS 66612-1366  
Attention: Doug Watson

Comments may also be submitted electronically to the following: [dwatson@kdheks.gov](mailto:dwatson@kdheks.gov)

### **Air Monitoring**

The Bureau of Air's, Air Monitoring and Planning Section administers the air monitoring and modeling program and the emissions inventory program. In cooperation with two local agencies, section staff operates the Kansas Ambient Air Monitoring Network, which provides air quality data from 16 sites across the state (Figure 1). The monitoring data is analyzed to determine compliance with [federal standards for criteria pollutants](#) and to evaluate air quality trends. In addition, the department has 6 mercury wet deposition monitoring sites located across the state. Staff members also conduct an annual emissions inventory of pollutants emitted from permitted facilities and other sources for the entire state. Staff who conduct air quality modeling use the emission inventory data. Modeling helps to better understand the causes of air pollution and to develop pollution reduction strategies in targeted areas. Such pollution reduction strategies are incorporated into state and regional plans to protect the public health, welfare and environment from the negative effects of air pollution.

## 2014 Kansas Air Monitoring Sites



Figure 1. 2014 Kansas Ambient Air Monitoring Network

## National Monitoring Network Design

The EPA developed a National Ambient Air Monitoring Strategy (NAAMS). The goal of the strategy is “to improve the scientific and technical competency of existing air monitoring networks to be more responsive to the public, and the scientific and health communities, in a flexible way that accommodates future needs in an optimized resource-constrained environment” (National Ambient Air Monitoring Strategy Document). As part of the Strategy, a network design has been implemented called the [National Core Network \(NCore\)](#). This network accommodates the overall strategic goals as well as determine air quality trends, report to the public, assess emission reduction strategy effectiveness, provide data for health assessments and help determine attainment / non-attainment status. NCore introduces a multi-pollutant monitoring component, and addresses the following major objectives:

- **Provide timely reporting of data to the public** through the [AIRNow](#) Web site ([www.airnow.gov](http://www.airnow.gov)), air quality forecasting and other public reporting mechanisms;
- **Support the development of emission reduction strategies** through air quality model evaluation and other observational methods;
- **Provide accountability of emission reduction strategy progress** through tracking long-term trends of criteria and non-criteria pollutants and their precursors;
- **Support long-term health assessments** that contribute to ongoing review of [National Ambient Air Quality Standards \(NAAQS\)](#);
- **Evaluate compliance with NAAQS** through designation of attainment / non-attainment areas; and
- **Support scientific studies** ranging across technological, health, and atmospheric process disciplines.

The KDHE ambient air quality monitoring program has accomplished the network reconfiguration needed to meet NCore objectives. Since 1999, as a result of implementing a major network reconfiguration associated with promulgation of the National Ambient Air Quality Standard (NAAQS) for PM<sub>2.5</sub>, the State of Kansas has:

- 1) completed a primary disinvestment in PM<sub>10</sub> sampling;
- 2) established five multi-pollutant sites, including one rural background, two rural transport and two urban trends sites;
- 3) expanded the ozone monitoring network in the Kansas City metropolitan area to optimize spatial distribution of monitors, adequately monitor background and transport and provide better coverage for AirNow mapping; and
- 4) added two IMPROVE-protocol (regional haze) sites.

In 2009, KDHE prepared a Monitoring Plan for NCore, which included two monitoring locations, one urban and one rural. The two monitoring locations were proposed and accepted by EPA Region VII on October 30, 2009. Because of funding issues, only the urban site has been developed at this time.

## National Core Monitoring (NCore) Network

In October 2006, the EPA established the National Core (NCore) multi-pollutant monitoring network in its final amendments to the ambient air monitoring regulations for criteria pollutants (codified in 40 CFR parts 53 and 58). EPA expects each state to have at least one NCore site. Nationwide, there will be approximately 75 sites, mostly in urban areas.

The NCore monitoring network addresses the following monitoring objectives which are equally valued at each site:

- timely reporting of data to the public through AIRNow, air quality forecasting, and other public reporting mechanisms;
- support development of emission strategies through air quality model evaluation and other observational methods;
- accountability of emission strategy progress through tracking long-term trends of criteria and non-criteria pollutants and their precursors;
- compliance through establishing nonattainment/attainment areas by comparison with the NAAQS;
- support of scientific studies ranging across technological, health, and atmospheric process disciplines; support long-term health assessments that contribute to ongoing reviews of the National Ambient Air Quality Standards (NAAQS); and
- support of ecosystem assessments, recognizing that national air quality networks benefit ecosystem assessments and, in turn, benefit from data specifically designed to address ecosystem analysis.

At a minimum, NCore monitoring sites must measure the parameters listed in Table 1.

Table 1: NCore Parameters

Parameter	Comments
PM <sub>2.5</sub> speciation	Organic and elemental carbon, major ions and trace metals (24 hour average every 3rd day)
PM <sub>2.5</sub> FRM mass	24 hour average every third day
continuous PM <sub>2.5</sub> mass	one hour reporting interval
continuous PM <sub>(10-2.5)</sub> mass	in anticipation of a PM <sub>(10-2.5)</sub> standard
lead (Pb)	24 hour sample every sixth day (first sample is required on December 29, 2011)
ozone (O <sub>3</sub> )	continuous monitor consistent with other O <sub>3</sub> sites
carbon monoxide (CO)	continuous monitor consistent with other CO sites
carbon monoxide (CO) trace level	continuous monitor capable of trace levels (low ppb and below)
sulfur dioxide (SO <sub>2</sub> )	continuous monitor consistent with other SO <sub>2</sub> sites
sulfur dioxide (SO <sub>2</sub> ) trace level	continuous monitor capable of trace levels (low ppb and below)
oxides of nitrogen (NO <sub>x</sub> )	continuous monitor consistent with other NO <sub>x</sub> sites
total reactive nitrogen (NO/NO <sub>y</sub> )	continuous monitor capable of trace levels (low ppb and below)
surface meteorology	wind speed and direction, temperature, barometric pressure, and relative humidity



0-209-0021; Kansas City:

This site (Figs. 2-5), which currently serves as an urban core multi-pollutant monitoring station, is designated as a NCore station. The site is located close to Nebraska Ave and North 10<sup>th</sup> Street, Kansas City, Kansas (N 39.117219; W -94.635605).

Figure 2. Kansas City, KS JFK NCore Site Map

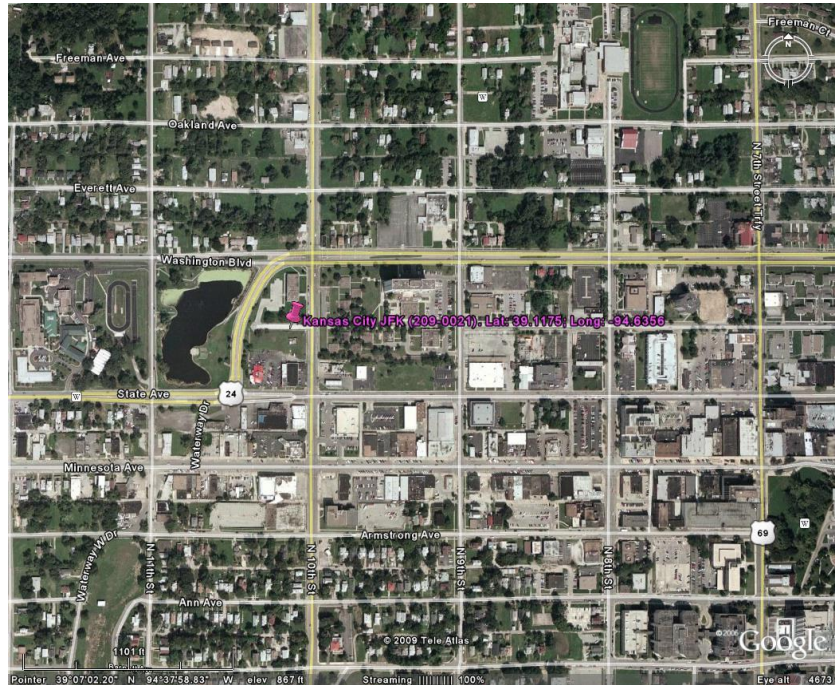


Figure 3. Kansas City, KS JFK NCore Site



Figure 4. Kansas City, KS JFK NCore Site



Figure 5. Kansas City, KS JFK NCore Site





## **IMPROVE Visibility Monitoring Network**

20-017-0001; Tallgrass Prairie National Preserve:

This site operates as an Interagency Monitoring of Protected Visual Environments (IMPROVE) protocol sampler. The site is located at N 38.433611; W -96.55944, northwest of Strong City, Kansas on Kansas Highway 177.

20-195-0001; Cedar Bluff Reservoir:

This location was chosen in Western Kansas to serve as a background site for several pollutants, including SO<sub>2</sub>, ozone, and PM<sub>2.5</sub>. It also operates as an IMPROVE protocol sampler site. The site is located at N 38.77027; W -99.76361, on the south side of Cedar Bluff Reservoir in Trego County.

## **Lead (Pb) Monitoring Network**

### ***Source-oriented Monitoring***

According to 40 CFR Part 58, Appendix D, paragraph 4.5(a), state and, where appropriate, local agencies are required to conduct ambient air monitoring for lead (Pb) considering Pb sources that are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each Pb source that emits one-half (0.5) or more tons per year. A search of reported emissions for 2007 revealed that only one source in Kansas exceeds the one-half ton threshold. This source is located at Salina.

According to 40 CFR Part 58, Appendix D, paragraph 4.5(a), source-oriented monitors are to be sited at the location of predicted maximum concentration in ambient air taking into account the potential for population exposure, and logistics. Typically, dispersion modeling will be required to identify the location of predicted maximum concentration.

Dispersion modeling was performed by KDHE to determine the area of maximum concentration for sampler placement. KDHE prepared a Monitoring Plan for Airborne Lead in 2009.

The Pb site near the Exide Technologies facility at Salina, KS has been designated with AQS site ID 020-169-0004. A high volume (HiVol), total suspended particulate (TSP) sampler is running at the site on a 1/6 day schedule and began sampling on February 2, 2010. KDHE installed an additional high volume (HiVol), total suspended particulate (TSP) sampler at the Salina monitoring site to use for collocation purposes in 2013. This monitor runs on the same 1/6 day sampling schedule as the existing lead monitor and was installed next to the existing monitor. The monitoring site is located at the following legal description:

SOUTH INDUSTRIAL AREA, S1, T15, R3, BLOCK 2, ACRES 13.4, LTS 21-30 EXC E 32 LT 30

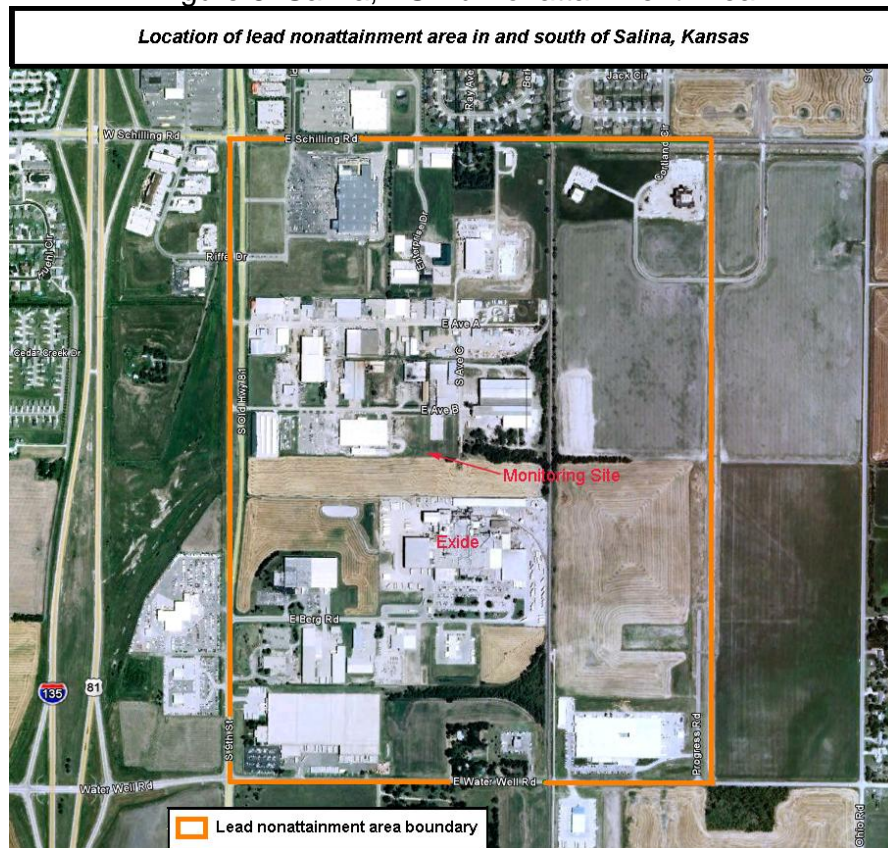
Figure 6. Salina, KS Pb Source Monitoring Site



Figure 7. Salina, KS Pb Source Monitoring Site



Figure 8. Salina, KS Pb Nonattainment Area



### ***Population based Lead Monitoring***

EPA is also requiring lead monitoring in large urban areas. These monitors will be located along with multi-pollutant ambient monitoring sites (known as the “NCore network”). Lead monitoring at these sites began January 1, 2012. KDHE located a high volume (HiVol), total suspended particulate (TSP) sampler at the JFK NCore site in Kansas City, Kansas to fulfill this requirement. It is running at the site on a 1/6 day schedule and began running December 27, 2011 and took its first sample on January 4, 2012.

### **Sulfur Dioxide Monitoring Network**

On June 2, 2010, EPA revoked the primary annual and 24-hour SO<sub>2</sub> standards from 30 ppb and 140 ppb, respectively, to a 1-hour standard of 75 ppb. The new SO<sub>2</sub> rule, published June 22, 2010, also stated the following:

- Any new monitors must be in operation by January 1, 2013.
- Monitoring required in Core Based Statistical Areas (CBSA's) based on population size and SO<sub>2</sub> emissions.
- Additional monitoring would also be required based on the state's contribution to national SO<sub>2</sub> emissions, which could be placed either



within or outside a CBSA's.

- Reporting requirement added to include maximum 5-minute block average of each hour.

KDHE currently monitors for SO<sub>2</sub> at the following sites; Cedar Bluff, Peck (Wichita), Chanute (New site, 2014) and JFK (Kansas City). Although originally a site was to be required by EPA in Manhattan based on 2008 NEI and census data, KDHE used 2009 NEI and census data to calculate a new Population Weighted Emissions Index for Manhattan, and found that no new SO<sub>2</sub> monitor will be required. This was caused by significant reductions in SO<sub>2</sub> at the Jeffrey Energy Center with the installation of wet scrubbers on all three units (see table 2).

Table 2

CBSA	County/counties	2008 PWEI	2009 PWEI
Atchison, KS	Atchison	0	0
Coffeyville, KS	Montgomery	36	20
Dodge City, KS	Ford	2	3
Emporia, KS	Chase, Lyon	0	0
Garden City, KS	Finney	80	82
Great Bend, KS	Barton	54	0
Hays, KS	Ellis	0	0
Hutchinson, KS	Reno	2	0
Kansas City, MO-KS	Franklin (KS), Johnson (KS), Leavenworth (KS), Linn (KS), Miami (KS), Wyandotte (KS), Bates (MO), Caldwell (MO), Cass (MO), Clay (MO), Clinton (MO), Jackson (M), Lafayette (MO), Platte (MO), Ray (MO)	462,597	159,338
Lawrence, KS	Douglas	311	322
Liberal, KS	Seward	4	1
Manhattan, KS	Geary, Pottawatomie, Riley	5,786	736
McPherson, KS	McPherson	13	13
Parsons, KS	Labette	4	0
Pittsburg, KS	Crawford	0	0
Salina, KS	Ottawa, Saline	0	0
St. Joseph, MO-KS	Doniphan (KS), Andrew (MO), Buchanan (MO), DeKalb (MO)	468	470
Topeka, KS	Jackson, Jefferson, Osage, Shawnee, Wabaunsee	1,279	1,357
Wichita, KS	Butler, Harvey, Sedgwick, Sumner	934	929
Winfield, KS	Cowley	0	0

"For any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO<sub>2</sub> monitor is required within that CBSA.

## Mercury Deposition Monitoring Network

KSA 75-5673 originally required that the Kansas Department of Health and Environment (KDHE) establish a statewide mercury deposition network consisting of at least six monitoring sites. Monitoring for a period of time long enough to determine trends (five or more years) was also specified. Legislative changes were enacted in 2014 that keep a network in place but allow the KDHE to re-examine the network size and location of the original six sites as established in response to KSA 75-5673. KDHE is currently working with other state agencies and academia to review the current network and determine the new network design. Any network changes will continue to be designed to assure compatibility with the national Mercury Deposition Network (MDN). The MDN, coordinated through the National Atmospheric Deposition Program (NADP), is designed to study and quantify the atmospheric fate and deposition of mercury. The MDN collects weekly samples of wet deposition (rain and snow) for analysis to determine total mercury. The current Kansas Mercury Wet Deposition Monitoring Network (KMDN) consists of six sites distributed across the state. The locations of existing and future sites in the states of Nebraska and Oklahoma were also taken into consideration to optimize regional mercury network coverage. A more detailed report on this network may be found at [http://www.kdheks.gov/bar/air-monitor/mercury/Hg\\_Report.pdf](http://www.kdheks.gov/bar/air-monitor/mercury/Hg_Report.pdf). A map of the network appears below in Figure 9.

Figure 9. Kansas Mercury Deposition Network and sites in Nebraska and Oklahoma





## Nitrogen Dioxide Monitoring Network

The state is required by 40 CFR 58 Appendix D to install and operate one microscale near-road NO<sub>2</sub> monitoring station and it is to be operational by January 1, 2017. The state is beginning to perform preliminary analysis on the selection of an appropriate near-road monitoring site in Wichita and will await funding to establish this site. EPA amended the applicability requirements of 40 CFR 58 Appendix D in March of 2013 to address the near road monitoring network and introduced a phased approach to implementation of the network.

Two criteria have been set up for NO<sub>2</sub> monitoring:

- Near-road NO<sub>2</sub> monitoring; 1 micro-scale site would be required in CBSAs  $\geq$  350,000 at a location of expected highest hourly NO<sub>2</sub> concentrations sited near a major road with high AADT (Annual Average Daily Traffic) counts.
- Community-wide; required in CBSAs  $\geq$  1 million at a location of expected highest NO<sub>2</sub> concentrations representing neighborhood or larger (urban) spatial scale.

Based on the near-road criteria, one monitor site was installed in 2013 in the Kansas City Metropolitan Area by the Missouri Department of Natural Resources Air Pollution Control Program and is located near I-70 and Sterling Avenue (39.047911, -94.450513, Figures 10-11). There will also be one site located in the City of Wichita. Based on the community-wide criteria, the Kansas City CBSA would be required to have a monitor and the JFK monitoring site (20-209-0021) satisfies this requirement.

Figure 10. Kansas City Near-Road NO<sub>2</sub> Station, 2014



Figure 11. Kansas City Near-Road NO<sub>2</sub> Station, 2014

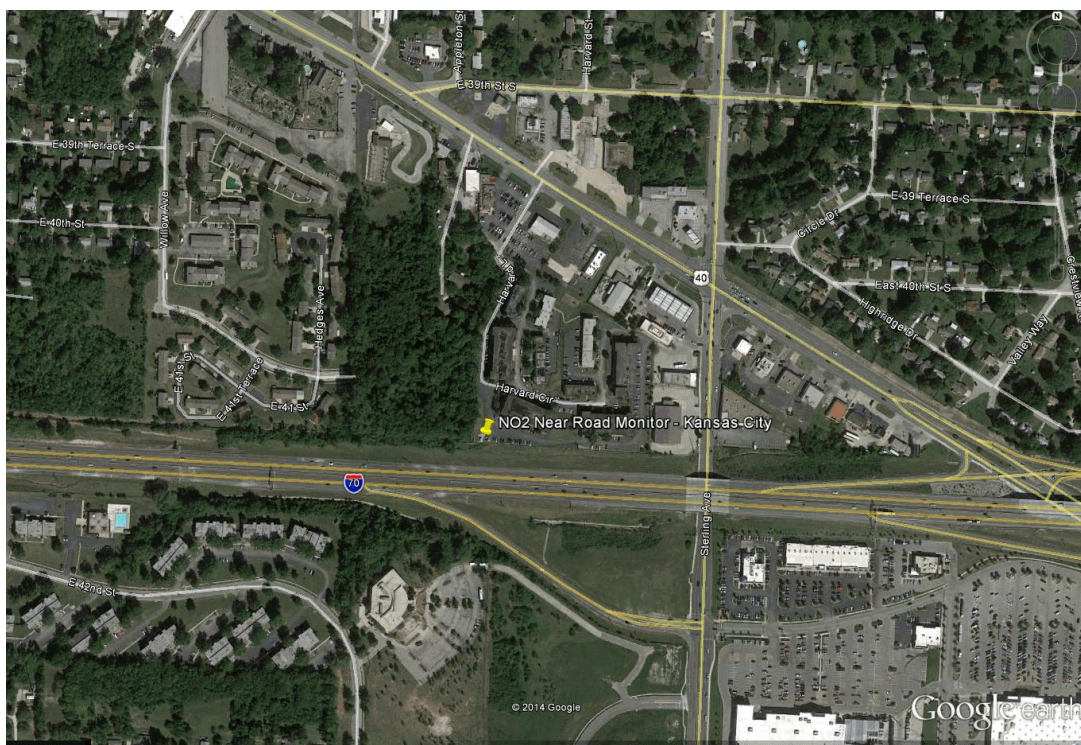
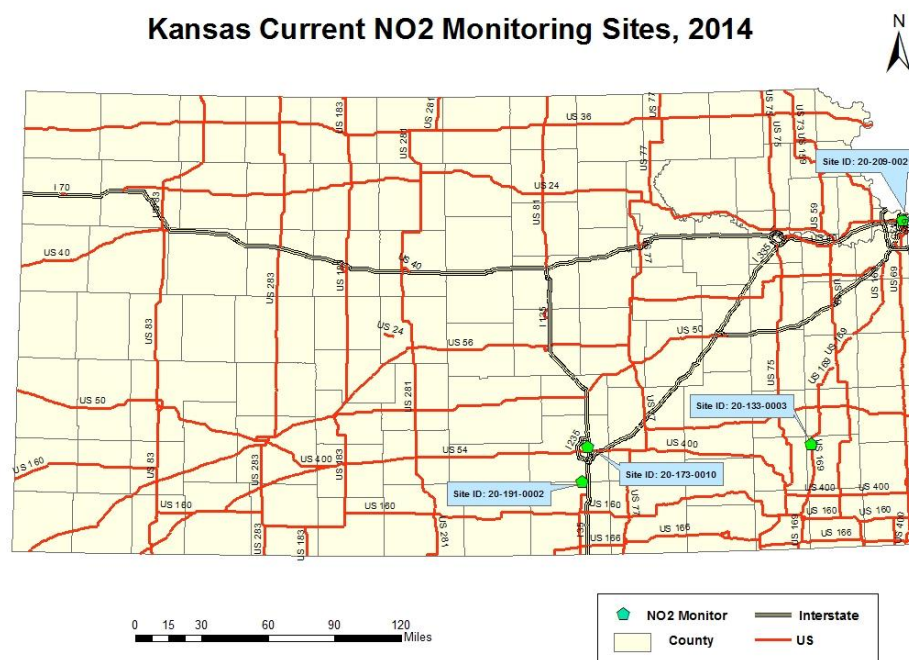


Figure 12. Kansas Nitrogen Dioxide Monitoring Sites, 2014



## Ozone Monitoring Network

### ***Current O<sub>3</sub> Standard and Monitoring Requirements***

The current NAAQS for O<sub>3</sub> is set at 0.075 parts per million (ppm) for both the primary standard and the secondary standard (<http://www.epa.gov/fedrgstr/EPA-AIR/2008/March/Day-27/a5645.pdf>).

### ***State of Kansas Current O<sub>3</sub> Monitoring Network***

The current Kansas O<sub>3</sub> monitoring network includes 9 monitors located throughout the state. Monitors are listed in Table 3 along with detailed site information. No collocated O<sub>3</sub> measurements are available in Kansas.

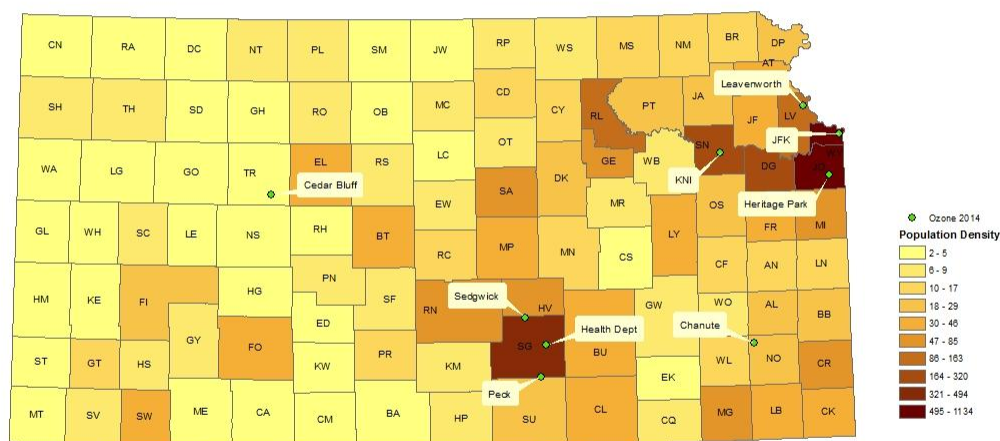
Table 3. State of Kansas O<sub>3</sub> Monitor Site ID and Location.

Site Name	Site ID	Latitude	Longitude	Address
Heritage Park	091 - 0010	38.838575	-94.746424	13899 W 159th (Heritage Park)
Leavenworth	103 - 0003	39.327391	-94.951020	2010 Metropolitan
Chanute (New 2014)	133 - 0003	37.67696	-95.47594	1500 West 7 <sup>th</sup> Street
Sedgwick	173 - 0018	37.897506	-97.492083	12831 W. 117N Sedgwick,KS
Wichita Health Dept.	173 - 0010	37.702066	-97.314847	Health Dept., 1900 East 9th St.
Topeka KNI	177 - 0013	39.024265	-95.711275	2501 Randolph Avenue
Peck	191 - 0002	37.476890	-97.366399	707 E 119th St South, Peck Comm Bldg
Cedar Bluff	195 - 0001	38.770081	-99.763424	Cedar Bluff Reservoir, Pronghorn & Muley
Kansas City JFK	209 - 0021	39.117219	-94.635605	1210 N. 10th St., JFK Recreation Center

Figure 13 shows the population density of the State of Kansas along with the monitoring sites (<http://www.census.gov/popest/counties/tables/CO-EST2008-01-20.xls>). Among these monitors, Topeka KNI, Peck and Kansas City JFK are urban scale monitors measuring population exposure; Sedgwick is an urban scale monitor measuring highest concentration; Heritage Park, Chanute and Leavenworth are neighborhood scale monitors measuring population exposure; Peck is a regional scale monitors measuring regional transport; and Cedar Bluff is regional scale monitor measuring the general background O<sub>3</sub> concentration in the state of Kansas.



Figure 13. State of Kansas Population Density Map and the Location of O<sub>3</sub> Monitors.



## PM<sub>2.5</sub> Monitoring Network

### ***Current PM<sub>2.5</sub> Standard and Monitoring Requirements***

On December 14, 2012, the U.S. Environmental Protection Agency (EPA) changed the primary annual National Ambient Air Quality Standard (NAAQS) for fine particles to 12.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and retained the 24-hour fine particle standard of 35  $\mu\text{g}/\text{m}^3$ . They also retained the existing secondary standards for PM<sub>2.5</sub> to address PM-related effects such as visibility impairment, ecological effects, damage to materials and climate impacts. This includes an annual standard of 15.0  $\mu\text{g}/\text{m}^3$  and a 24-hour standard of 35  $\mu\text{g}/\text{m}^3$ .

The primary annual standard is based on a 3 year average of the weighted annual mean. The primary 24-hour standard is based on a 3 year 98<sup>th</sup> percentile average of 24-hour values. Current minimum monitoring requirements for PM<sub>2.5</sub> are shown in Table 4 (<http://edocket.access.gpo.gov/2006/pdf/06-8478.pdf>).

Table 4. PM<sub>2.5</sub> Minimum Monitoring Requirements (Number of Stations per MSA)

Population Category	3-yr design value > 85% of NAAQS	3-yr design value < 85% of NAAQS
> 1,000,000	3	2
500,000 - 1,000,000	2	1
50,000 - <500,000	1	0

<sup>1</sup> Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

<sup>2</sup> Population based on latest available census figures.

<sup>3</sup> The PM<sub>2.5</sub> National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part [50](#).

<sup>4</sup> These minimum monitoring requirements apply in the absence of a design value.

<sup>5</sup> Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

In addition to the minimum number of monitors required, there are also requirements for a minimum number of continuous monitors to be deployed. Fifty percent of the minimum required number of monitoring sites are required to be a continuous PM<sub>2.5</sub> monitor. For Kansas this means that at a minimum two continuous PM<sub>2.5</sub> monitors need to be operated in the state.

Applying the minimum monitoring requirements to Kansas urban areas, population totals and historical PM<sub>2.5</sub> measurements results in the design requirements shown in Table 5. According to Tables 4 and 5, PM<sub>2.5</sub> monitors could be removed from the Wichita area and the Kansas City area assuming the Missouri side of Kansas City retains a PM<sub>2.5</sub> monitor(s).

Table 5. Minimum Number of PM<sub>2.5</sub> Monitors Required in Kansas MSA

MSA	Population (2010)	Number of Existing PM <sub>2.5</sub> Monitors	PM <sub>2.5</sub> Monitors Required
Wichita, KS	623,061	3	1
Topeka, KS	233,870	1	0
Lawrence, KS	110,826	0	0
Kansas City, MO-KS	2,035,334	3 (KS side only)	2



## State of Kansas Current PM<sub>2.5</sub> Monitoring Network

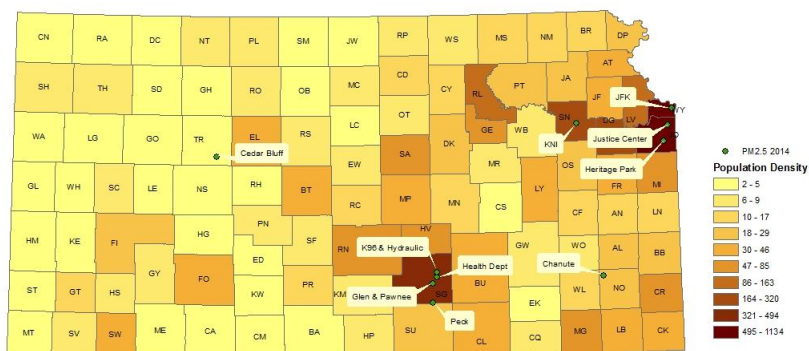
Current Kansas PM<sub>2.5</sub> monitoring network includes 12 monitors located throughout the state at 10 different monitoring sites. Ten of the monitors are filter based while the remaining two monitors are continuous Tapered Element Oscillating Microbalance (TEOM). Only one of the TEOM monitors, located at JFK, is equipped with a Filter Dynamics Measurement System (FDMS) and is considered a federal reference monitor. Monitor locations and type are listed in Table 6 along with detailed site information. One site has collocated filterable and continuous PM<sub>2.5</sub> measurements, at JFK in Kansas City.

Table 6. State of Kansas PM<sub>2.5</sub> Monitor Site ID and Location.

Site Name	Site ID	City	Address	Lat_DD	Lon_DD	PM <sub>2.5</sub>	CPM <sub>2.5</sub>
Cedar Bluff	195 - 0001	Cedar Bluff	Cedar Bluff Reservoir, Pronghorn & Muley	38.770081	-99.763424	NO	YES
Justice Center	091 - 0007	Overland Park	85th And Antioch	38.974457	-94.687013	YES	NO
Heritage Park	091 - 0010	Olathe	13899 W 159th (Heritage Park)	38.838575	-94.746424	YES	NO
K-96 and Hydraulic	173 - 1012	Wichita	K-96 and Hydraulic	37.747085	-97.316912	YES	NO
Glenn & Pawnee	173 - 0009	Wichita	Fire Sta#12 Glenn & Pawnee	37.651114	-97.362212	YES	NO
Health Dept.	173 - 0010	Wichita	Health Dept., 1900 East 9th St.	37.702066	-97.314847	YES	NO
KNI	177 - 0013	Topeka	2501 Randolph Avenue	39.024265	-95.711275	YES	NO
Peck	191 - 0002	Peck	707 E 119th St South, Peck Community Bldg	37.476890	-97.366399	YES	NO
Chanute	133 - 0003	Chanute	1500 West 7 <sup>th</sup> Street	37.67696	-95.47594	YES	NO
JFK	209 - 0021	Kansas City	1210 N. 10th St., JFK Recreation Center	39.117219	-94.635605	YES	YES

Figure 14 shows the population density of the State of Kansas along with the PM<sub>2.5</sub> monitoring sites (<http://www.census.gov/popest/counties/tables/CO-EST2008-01-20.xls>). All of these monitors have 3 year design values at or below the 85% of the NAAQS concentration category.

Figure 14. State of Kansas Population Density Map and the Location of PM<sub>2.5</sub> Monitors.



## PM<sub>10</sub> Monitoring Network

### ***Current PM<sub>10</sub> Standard and Monitoring Requirements***

Current national ambient air quality standards (NAAQS) for PM<sub>10</sub> has been set to 150 micrograms per meter cubed for both the primary standard and the secondary standard (<http://www.epa.gov/ttn/naaqs/standards/pm/data/fr20061017.pdf>). This standard is not to be exceeded more than once per year on average over 3 years. Current minimum monitoring requirements for PM<sub>10</sub> are shown in Table 7 (<http://edocket.access.gpo.gov/2006/pdf/06-8478.pdf>).

Table 7. PM<sub>10</sub> Minimum Monitoring Requirements (Number Of Stations per MSA)<sup>1</sup>

Population Category	High Concentration <sup>2</sup>	Medium Concentration <sup>3</sup>	Low Concentration <sup>4</sup>
> 1,000,000	6 - 10	4 - 8	2 - 4
500,000 - 1,000,000	4 - 8	2 - 4	1 - 2

250,000 - 500,000	3 - 4	1 - 2	0 - 1
100,000 - 250,000	1 - 2	0 - 1	0

<sup>1</sup> Selection of urban areas and actual numbers of stations per area within the ranges shown in this table will be jointly determined by EPA and the State Agency.

<sup>2</sup> High concentration areas are those for which ambient PM<sub>10</sub> data show ambient concentrations exceeding the PM<sub>10</sub> NAAQS by 20% or more.

<sup>3</sup> Medium concentration areas are those for which ambient PM<sub>10</sub> data show ambient concentrations exceeding 80% of the PM<sub>10</sub> NAAQS.

<sup>4</sup> Low concentration areas are those for which ambient PM<sub>10</sub> data show ambient concentrations < 80% of the PM<sub>10</sub> NAAQS.

Applying the minimum monitoring requirements to Kansas urban areas, population totals and historical PM<sub>10</sub> measurements results in the design requirements shown in Table 8. According to Tables 7 and 8, PM<sub>10</sub> monitors could be removed from the Wichita area and the Kansas City area assuming the Missouri side of Kansas City retains a PM<sub>10</sub> monitor.

Table 8. Minimum Number of PM<sub>10</sub> Monitors Required in Kansas MSA

MSA	Population (07/08/2008)	Number of Existing PM <sub>10</sub> Monitors	PM <sub>10</sub> Monitors Required
Wichita, KS	603,716	3	1 – 2
Topeka, KS	229,619	1	0 – 1
Lawrence, KS	114,748	0	0
Kansas City, MO-KS	2,002,047	2 (KS side only)	2 – 4

### ***State of Kansas Current PM<sub>10</sub> Monitoring Network***

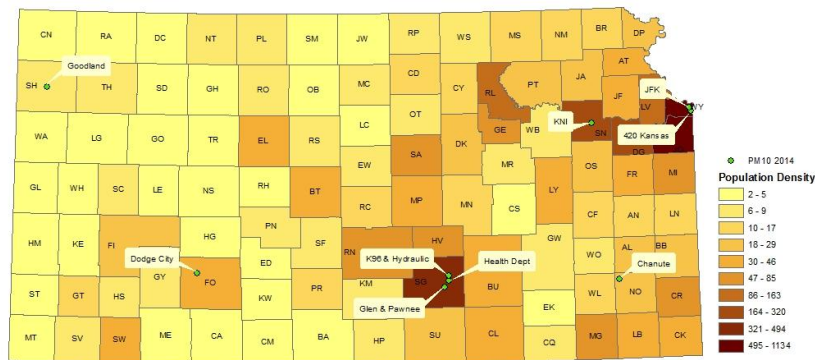
Current Kansas PM<sub>10</sub> monitoring network includes 10 monitors located throughout the state at 8 monitoring sites. Three of the monitors are filter based while the other seven monitors are continuous. Monitor locations and type are listed in Table 9 along with detailed site information.

Table 9. State of Kansas PM<sub>10</sub> Monitor Site ID and Location.

Site Name	Site ID	City	Address	Lat_DD	Lon_DD	PM <sub>10</sub>	Cont. PM <sub>10</sub>
Dodge City	057 - 0002	Dodge City	Dodge City Community College	37.775303	-100.035440	NO	YES
Glen & Pawnee	173 - 0009	Wichita	Fire Sta#12 Glen & Pawnee	37.651114	-97.362212	NO	YES
Health Dept	173 - 0010	Wichita	Health Dept., 1900 East 9th St.	37.702066	-97.314847	NO	YES
Chanute	133 - 0002	Chanute	1500 West Seventh	37.676308	-95.474649	NO	YES
Goodland	181 - 0001	Goodland	City Fire Sta , 1010 Center	39.348452	-101.713405	YES	NO
JFK	209 - 0021	Kansas City	1210 N. 10th St.,JFK Recreation Center	39.117219	-94.635605	YES + colocated	YES
K-96 And Hydraulic	173 - 1012	Wichita	K-96 And Hydraulic	37.747085	-97.316912	NO	YES
KNI	177 - 0013	Topeka	2501 Randolph Avenue	39.024265	-95.711275	NO	YES

Figure 15 shows the population density of the State of Kansas along with the monitoring sites (<http://www.census.gov/popest/counties/tables/CO-EST2008-01-20.xls>). All of these monitors have 3 year design values in the Low (< 80% of the NAAQS) concentration category.

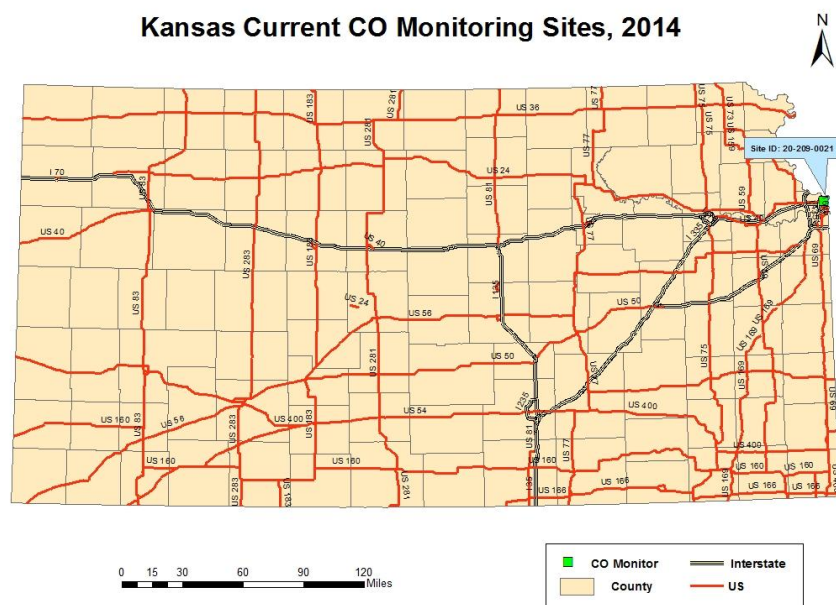
Figure 15. State of Kansas Population Density Map and the Location of PM<sub>10</sub> Monitors.



## Carbon Monoxide

EPA conducted a review of the CO NAAQS and decided to retain the existing standards in 2011. The BOA currently has one CO monitoring site in the state (Figure 16). It is located at the JFK site in Kansas City, KS.

Figure 16. Kansas Carbon Monoxide Monitoring Sites, 2014





# Special Monitoring Project

The KDHE and the BNSF Railway Company have established a continuous PM<sub>2.5</sub> and PM<sub>10</sub> monitoring site near the new BNSF Kansas City Intermodal Facility to determine traffic impacts on near road air quality. The site is located on the SE corner of 191<sup>st</sup> Street and Homestead Road in Johnson County (Figures 17-18).

Figure 17. Monitoring Site location for BNSF Intermodal Facility

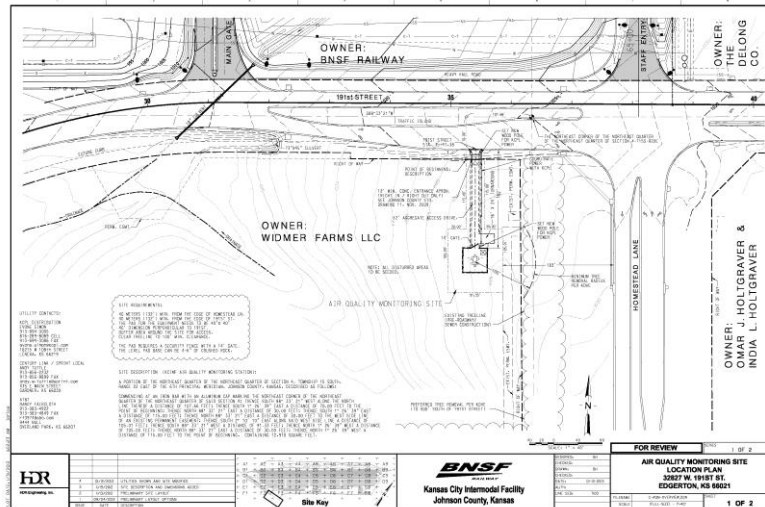


Figure 18. Monitoring Site location for BNSF Intermodal Facility



## Quality Assurance/Quality Control (QA/QC) Program

The purpose of the QA/QC program is to assure the quality of data obtained from the KDHE air monitoring networks. The KDHE meets or exceeds the QA requirements defined in 40 CFR 58 and all applicable appendices.

The QA/QC program includes but is not limited to the following activities:

- instrument performance audits,
- monitor siting evaluations,
- precision and span checks,
- bias determinations,
- flow rate audits,
- leak checks, and
- data validation

For independent quality assurance activities, the KDHE participates in the National Performance Audit Program and the Performance Evaluation Program for criteria pollutant monitoring and performance.

As the Primary Quality Assurance Organization (PQAO) for ambient air monitoring activities in Kansas, the KDHE operates under an EPA approved Quality Management Plan (QMP) and utilizes Quality Assurance Project Plans (QAPP) for each statewide monitoring network. The primary purpose of the QAPP is to provide an overview of the project, describe the need for the measurements, and define QA/QC activities to be applied to the project. All other ambient air monitoring initiatives including state, tribal and industrial projects must have a KDHE approved monitoring plan for each specific project.

## **List of Proposed Changes to the Kansas Ambient Air Monitoring Network**

20-195-0001; Cedar Bluff;

This is a comprehensive site in Western Kansas (38.770081, -99.763424) but does not currently have a continuous PM<sub>10</sub> monitor or a Continuous FEM PM<sub>2.5</sub>. It is the intention of the BOA to install a new combination continuous PM<sub>10</sub>/PM<sub>2.5</sub> monitor at this site in 2014-15. Once this is accomplished, the existing PM<sub>2.5</sub> monitor at the site will be removed.

20-181-0001; Goodland;

It is the intention of the BOA to remove the Goodland PM<sub>10</sub> filter based monitor once the continuous PM<sub>10</sub> monitor is installed at the Cedar Bluff site. The BOA will run both monitors for a period of time to analyze the data comparability of the two sites before removing the Goodland monitor.

20-173-0010; Wichita HD;

Installation of a new combination continuous PM<sub>10</sub>/PM<sub>2.5</sub> monitor at this site in 2014-15 is being considered.

20-173-0009; Wichita Glenn & Pawnee;

Because of safety concerns associated with this site being located on the roof of the fire station, the BOA will be looking at possible ground level relocation sites near this location. In addition, once the new combination continuous PM<sub>10</sub>/PM<sub>2.5</sub> monitor is located at the Health Department site, the BOA will remove the continuous PM<sub>10</sub> monitor from this site. The BOA will also consider adding a collocated PM<sub>2.5</sub> monitor to this site once the PM<sub>10</sub> monitor is removed.

20-091-0010; Heritage Park Johnson Co.;

The BOA will move an existing continuous PM<sub>2.5</sub> monitor from the JFK NCore (Wyandotte Co.) site to this site to replace the existing filter based monitor.

20-177-0013; KNI Topeka;

The BOA is considering adding a combination continuous PM<sub>10</sub>/PM<sub>2.5</sub> monitor to this site.

The BOA is considering purchasing 2-3 small Community Based Sized Monitors to use in special air monitoring studies.

## Public Comments